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The Production and Preparation of Seed for Exhibition

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The Province of Alberta has always been well represented in the more important grain and seed fairs held on this continent. In 1928 Alberta exhibited 45 samples at the International Hay and Grain Show at Chicago and won 35 prizes. In 1929 her growers exhibited 118 samples at the same show and won 97 prizes, including the World Championship in hard red spring wheat.

In 1932 there is to be held at Regina the World's Grain Exhibition and Conference. The sum of over two hundred thousand dollars is to be given away in prizes. On the basis of past performances Alberta has a right to expect a considerable share of the honours for quality production as well as of the prize money.

The winning of prizes and honours at the seed shows is not the only tangible reward of successful high quality crop production. Even though a grower is successful at the shows, he cannot expect that over a period of years the prize money will do much more than pay the expenses of preparing his exhibits. What is more important to him personally is the publicity which his business, as a seed or grain grower, receives. There is also the publicity which his district receives as an agricultural region with a soil and climate capable of producing crops of the highest quality. When a grower wins prizes at the larger shows his name appears in practically every paper in Canada, and in other countries, where there are potential buyers of his product.

Seed.

The first and most important consideration for the person who intends to exhibit is to grow his exhibition material from good seed. It is useless to exhibit grain of inferior varieties or stocks, as many impurities are likely to appear in the

threshed sample with a consequent loss in uniformity. If seed of high quality is not already on hand, then obtain registered or certified seed of the most desirable show varieties. There is a great diversity in the varieties which have been successful in winning prizes at the larger shows. A favourable soil and climate together with exceptional care and preparation of the sample may result in winning with an ordinary variety, or with common seed, but the chances against such an occurrence are very great. Certain varieties from the Prairie provinces have been notably successful and consistent in placing at the Royal in Toronto and the International at Chicago. The more important ones are as follows:

Spring Wheat—Marquis, Red Fife, and Reward.
Durum Wheat—Kubanka and Mindum.
Winter Wheat—Kharkov and Turkey.
Oats—Victory, Banner, and White Cross.
Barley—O.A.C. No. 21, Canadian Thorpe, Chevalier, Trebi, White Hulless and Guy Mayle.
Rye—Prolific, Rosen and Dakold.
Peas—Golden Vine and Chancellor.
Sweet Clover—Arctic.
Alfalfa—Grimm.
Flax—N. Dak. No. 114 and Bison.

The names of growers of registered or certified seed of these varieties can be obtained from the Secretary of the Alberta Seed Growers' Association at Edmonton, or from the Dominion Seed Branch at Calgary.

Only clean seed should be sown. It should be free from admixtures of both weed seeds and seeds of other crop varieties. Sow early so that the resulting crop will have plenty of time to mature before the occurrence of frosts. Do not seed exhibition grain too thinly. If the seed came from a field infected with either loose or covered smut it should be treated before sowing. For methods of treatment, see University of Alberta Circular No. 5, Treatment of Seed Grain.

Soil.

Select a field which is free from weeds and weed seeds as well as admixtures of the same kind of grain. The growing of barley after oats or oats after barley is also to be avoided.

Rolling land is especially desirable for oats. The exposed portions, where there is a good circulation of air, usually produce a better sample for exhibition purposes. The topo-

graphy of rolling land permits of different crop conditions in different places, which in turn provide the opportunity for selection in places where the environment has been most favorable. A careful inspection of the crop both before it is cut and again after it is in the stook will often reveal patches of grain of high quality.

When selecting a field for wheat, requirements quite different from those for oats must be kept in view. Best results are usually obtained when it is grown in a protected place with a good soil and plenty of moisture. Prize wheat can rarely be grown on breaking. Summer-fallow is not necessarily the best place, as in a wet year the wheat produced may be coarse, starchy and open in the crease. Wheat following a crop of oats or green feed is often preferred.

Harvesting.

Before any harvesting operations are commenced, rogue out diseased plants and any off-types or admixtures of other crops. It is easier to remove such impurities in the field than to resort to the tedious process of removal by hand from the threshed sample. Remove all marginal material, as the rank growth and late maturity of these plants are not conducive to the production of uniform high quality samples.

Wheat should be harvested when fully mature. The straw should have a uniform golden colour and the kernel should be free from any traces of green. Oats should not be cut until dead ripe. One grower prefers to cut both his wheat and oats when they are dry enough to stack. The cutting should not be unduly delayed, however, as there is likely to be a loss in colour. The grain should not be cut when wet with rain or dew, but rather following a period of bright sunshine and wind. Patches of superior grain should be selected in the field before cutting and then checked again in the stook just before threshing.

Barley weathers very quickly, and if left standing until fully matured will probably be discoloured. It should be cut when the kernel is firm and the wrinkles have begun to form. Barley should be dried as quickly as possible, as it is much more subject to damage by moisture than either oats or wheat.

When cutting for exhibition purposes, tie small sheaves and stook immediately. When the heads are permitted to lie on the ground in contact with the soil, discoloration takes place very rapidly. Make the stooks so that there will be a

good circulation of air. The stooks should be well capped and the cap sheaves threshed separately. It may be necessary to cover the stooks with canvas if adverse weather conditions set in while they are still in the field. If cut at the proper time and the weather conditions have been favourable, the grain need stand in the stook only a few days before stacking. Stacking for several weeks or months usually aids materially in producing a good even colour.

Very often the exhibition sheaves are removed to a shed for drying. When this plan is adopted care should be taken to ensure a free circulation of air to avoid moulding and discoloration. The sheaves should be hung with the butt end up and the heads down.

Threshing.

Oats and wheat can be threshed in a machine without very much damage. Injury to the kernels can be lessened by slowing down the speed of the machine. Some growers recommend the removal of the concaves while the exhibition sample is being threshed. The particular method to follow depends upon the condition of the grain. If it is threshed when still on the tough side, there is much less likelihood of splitting and cracking of the kernels of wheat or of hulling the oats.

If one has plenty of time and wishes to take special care, hand threshing is recommended. This can be done by beating out the grain with a flail either on the floor of the barn or in a sack. The grain should be well protected with a covering of straw if a wooden flail is used. A flail made of a piece of rubber hose ought to lessen the danger of kernel damage.

In plant breeding work where the heads from individual plants are threshed separately, two different methods have been very successful and rapid.

The first makes use of a wooden frame about a yard square with a piece of cloth from a grain sack or canvas stretched tightly over one side and tacked on the edges. The heads are placed on the canvas and rubbed with a wooden block covered with a piece of corrugated rubber. The block is usually a piece of two-by-four about six inches long. If this operation is carried on in front of an electric fan the chaff is blown away and the clean seed left.

The second method makes use of a wooden cylinder about twelve inches long and six to eight inches in diameter set on a frame with a handle so that it can be rotated. The cylinder

is covered with a sheet of corrugated rubber. A loose flap concave of corrugated rubber is hung on a frame about one-eighth to one-fourth of an inch from the cylinder. The heads of grain are then placed between the two sheets of corrugated rubber and the cylinder rotated.

Barley should be threshed by hand. Damage to the hull is done easily with the regular threshers, and is so severely marked down in judging that the risk of damage to exhibition samples is not worth the time saved.

Preparation.

It is often said that the preparation of the exhibition sample wins more prizes than the actual quality of the grain. Excellent samples often lost out because the exhibitor did not take the trouble to prepare his grain properly. Some of the points to keep in mind and their relative values can well be illustrated by the following score cards.

	Wheat Possible Score	Oats Possible Score	Barley Possible Score
Purity			
Purity as to variety	20	12	12
Free from other kinds of grain	10	8	8
Free from weed seeds	16	20	18
Free from disease, chaff, dirt, etc.	15	10	12
Quality			
Sound grain—mature, free from frost and other mechanical or weather damage	20	20	15
Size, plumpness and uniformity	14	12	12
Thinness of hull	....	10	....
Malting value	....	....	15
Colour	5	8	8
	100	100	100
Deductions for serious faults	....	....	....
Final score	....	....	....

The characteristics of a good show sample may be described in more general terms as follows:

First, keep in mind that high weight is a very important consideration, and everything that will contribute to it in a given sample should be employed.

Second, all seed for competition should be entirely free from dirt, chaff, and weed seeds and should be pure as to variety.

Third, the seed should be uniform in size, shape, colour and other characteristics peculiar to the variety in question.

Fourth, the sample should be bright, clear, entirely free from any indication of frost injury, and of low moisture content.

After the grain is threshed it should be cleaned with a fanning mill that has a strong wind blast. All of the larger kernels should be removed with scalping screens. These large kernels may look fine, but when closely examined will be found to be rather coarse. The size of screen to be used will vary with the sample and the year, but in general the larger kernels of wheat can be removed with a No. 10½ or 11 screen, and a No. 9 lower screen will take out the smaller kernels. Samples should be run through the fanning mill several times or until the bulk of the seed is reduced at least to about one-fifth of the original lot. It should then be run over hand screens.

If the sample is hand-picked, strive for uniformity of size, shape and colour. The ordinary bean picker with an automatic feed on to an endless belt will prove of great assistance and a time-saver in hand-picking samples. The weather has a great influence upon the colour, but considerable improvement can be made in the appearance of a sample by removing those kernels which do not blend well with the sample as a whole. Colour can best be judged when working at a north light. Samples may be polished by partially filling (1/3) a grain sack with the sample and then working the grain back and forth in an oscillating manner. Sometimes a block of wood is placed in the sack with the grain. Samples may also be polished by rubbing with silk or velvet. Great care should be taken in polishing oats and barley, as these grains are easily injured. The hull should not be worked down so close that the endosperm is exposed.

In preparing an exhibit of wheat one must first of all know the peculiar characteristics of the variety and see to it that a pure variety is sent. If one is contemplating exhibiting Marquis wheat, for instance, one should know the characteristics of Marquis. At Regina fifty pounds of seed is required for exhibit, and this amount can be hand-picked several times in order to arrive at a perfect quality and uniformity of seed. Marquis sometimes has white kernels in it, or kernels with a yellowish-white coloured bran or skin. Yellow, starchy kernels are also often present. These must be removed if necessary, by hand. The appearance of the grain can be improved a little by rubbing the sample after it has been properly prepared, either in the bag or in the hands.

The quantity of grain required for shows is usually so small that it can be hand-picked several times to bring out only the best that is in it. Some people object to the exhibition of hand-picked samples because they do not represent truly the bulk of the grain from which they were selected. In order to allay this criticism, provision has been made for a special class of hard red spring wheat at the World's Grain Exhibition and Conference which must bear a variety name and consist of ten bushels. Such a large sample will undoubtedly prohibit hand-picking. In order to attain a high standard in this class, it is all the more necessary to give special consideration to the growing and handling of the crop.

In preparing oats for exhibit the greatest weight can be obtained by rubbing the grain and thereby removing any outer chaff that may have adhered, also the tips of the glumes. If there are any oats present in which the small oat is enclosed within the bosom of the large oat (double oats), these should be removed, as such oats tend to lower the weight per measured bushel. Try to remove all of the small oats, which are commonly called pin oats or secondary oats. With these removed the sample is more uniform, although it may not weigh so heavily. Weight, however, should be sacrificed for uniformity. Care should be taken not to hull any of the oats or to split open the hull so as to expose the meat or endosperm. All hulless oats should be removed from the sample. Care should be exercised to produce a sample that is bright, clear, and not in any way discoloured, as it often is from weathering, which gives a yellowish cast to the oat. All green oats should be removed from the sample also.

In barley, colour is very important and care should be exercised to have as bright a sample as possible. Two-rowed barleys generally command the best place at an exhibition, partly because of their size and uniformity. In preparing a six-rowed sample one should aim to have the same general appearance and good points as shown by two-rowed varieties. Remove all smaller kernels and exercise every care in the preparation of the sample, so that the outer skin be maintained and not stripped off, as is often the case from close threshing and rough usage. The awns should be broken from the kernels at a uniform distance. Samples with varying lengths of awns are very undesirable, especially if some have been broken off so short that the endosperm is exposed.

In exhibiting peas uniformity of size and colour are very important points to be observed. Small-seeded varieties are

generally preferred over large-seeded varieties, provided equal uniformity can be secured.

In rye, uniformity of colour and size are very important points. Rye samples are frequently variegated in colour because of differences between kernels.

In flax, purity or freedom from weed seeds stands first in importance, although freedom from frost and immature kernels that are discoloured is almost equally important.

In the small seeds such as alfalfa, colour, purity and quality are the important considerations. Alfalfa should be bright, lemon yellow, large, plump and free from green, brown or black seeds. The clovers should also be bright and well coloured.

Storage of Show Samples.

There is always the possibility of crop injury, due to drought, hail, rust, insects, etc., which may prevent the grower from obtaining a suitable sample of grain for exhibition purposes. Since the regulations for the World Show do not require that the crops be grown in any specified season, it would seem advisable to guard aganst the handicap of an unfavourable season by carrying over sufficient material for show purposes. In the absence of specific information on the best methods of carrying over exhibition material, it would seem, from a general knowledge of crop handling, that it would be best to save both threshed and unthreshed samples.

Samples of threshed grain for exhibition purposes can be carried over an extra year by placing them in metal containers such as galvanized iron garbage cans. The cans should have a hook cover that cannot be readily knocked off. The grain should first be placed in clean sacks and well labelled. The cans should then be placed in a barn where it is dry and they are not exposed to direct sunlight. Neither ordinary summer temperatures nor low winter temperatures have any particular influence on the germination of the seed if the grain is dry and sound. Artificial cold storage is not necessary, but will do no harm if readily available.

Uuthreshed samples of grain can be carried over in small sheltered stacks or by hanging the sheaves up in the barn. Sheaves placed in the barn should be hung with the heads down. The place of storage should be dark, but well-ventilated.

Conclusion.

In conclusion it might be well to point out that the preparation of grain for exhibition purposes is an art. Two individuals with the same sample, equipment, technic and knowledge may have entirely different results in their final products. The personal element is an important factor. Likewise the original samples themselves, which are the potter's clay to be moulded by the exhibitor, cannot be made to show characteristics which were not already present. A good sample of bulk grain is therefore a prerequisite to success. The points mentioned above are put forward merely as hints for the beginner. Every successful exhibitor has his own methods. Study the winning samples at every show that it is possible to attend. Experiment freely with your own grain. Exhibit the results of your labour and gain further experience in the preparation of your samples by competing with the best in your district or province. Start early and learn the game before the big show comes along.